

537, 208

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



03 JUN 2005



(43) International Publication Date  
17 June 2004 (17.06.2004)

PCT

(10) International Publication Number  
**WO 2004/051572 A2**

(51) International Patent Classification<sup>7</sup>: **G06T 7/00**

(21) International Application Number:  
PCT/IB2003/005495

(22) International Filing Date:  
26 November 2003 (26.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
02292995.4 4 December 2002 (04.12.2002) EP  
03290455.9 26 February 2003 (26.02.2003) EP

(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]**;  
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FLORENT, Raoul**

[FR/FR]; c/o SPID, 156 Boulevard Haussmann, F-75008 Paris (FR). **NOSJEAN, Lucile** [FR/FR]; c/o SPID, 156, Bd Haussmann, F-75008 Paris (FR). **LELONG, Pierre** [FR/FR]; c/o SPID, 156, Bd Haussmann, F-75008 Paris (FR). **RONGEN, Peter** [NL/NL]; c/o SPID, 156 Bd Haussmann, F-75008 Paris (FR).

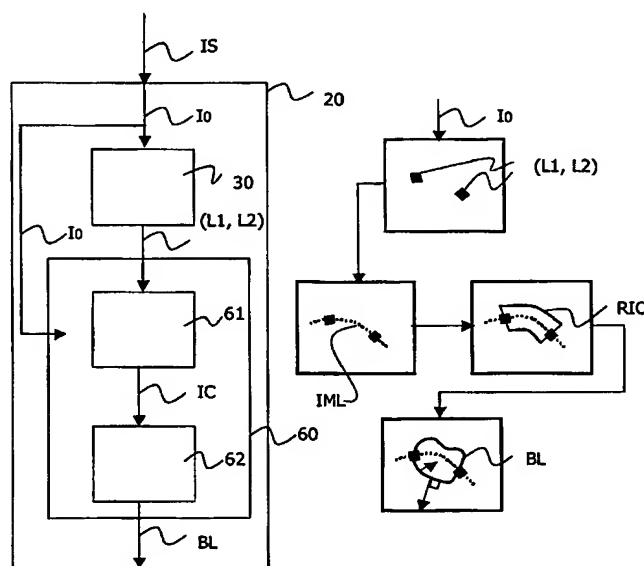
(74) Agent: **CHAFFRAIX, Jean**; Société Civile SPID, 156 Boulevard Haussmann, F-75008 Paris (FR).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,

[Continued on next page]

(54) Title: **MEDICAL VIEWING SYSTEM AND METHOD FOR DETECTING BORDERS OF AN OBJECT OF INTEREST IN NOISY IMAGES**



(57) **Abstract:** The invention relates to a viewing system and a method for detecting an object of interest in a sequence of images (IS). Said object of interest is detected by first locating localizers related to said object of interest and by locating borders (BL) related to said object of interest using the location (LI, LZ) of said localizers. The viewing system according to the invention is able to produce a sequence of enhanced images in which the object of interest is enhanced, to measure some characteristics and to build a three dimensional representation of said object of interest. The viewing system is also able to register and combine said sequence of enhanced images with a sequence of reference images.

WO 2004/051572 A2



SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

**Declaration under Rule 4.17:**

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD,*

**Published:**

— *without international search report and to be republished upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*